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REC'D 14 OCT 1999	
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## CERTIFICATE

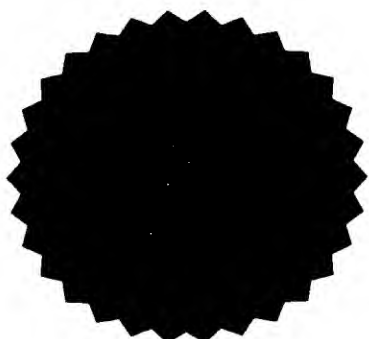
This certificate is issued in support of an application for Patent registration in a country outside New Zealand pursuant to the Patents Act 1953 and the Regulations thereunder.

I hereby certify that the annexed is a true copy of the Provisional Specification as filed on 16 September 1998 with an application for Letters Patent number 331908 made by Dstd Consultants Ltd.

Dated 30 September 1999.

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Neville Harris  
Commissioner of Patents



331908

Patents Form No. 4

Our Ref: JT210399

Patents Act 1953

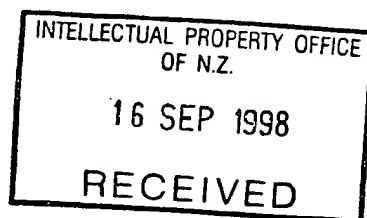
PROVISIONAL SPECIFICATION

METHOD OF EDITING PROGRAM CONTENT AND APPARATUS THEREFOR

We, **DSTD CONSULTANTS LTD.**, a New Zealand company, of 675 Fergusson Drive, Upper Hutt, New Zealand do hereby declare this invention to be described in the following statement:

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## METHOD OF EDITING PROGRAM CONTENT AND APPARATUS THEREFOR

The present invention relates to a method of editing undesired content from a program and apparatus for performing the method. More particularly, but not exclusively, the present invention relates to a method and apparatus for editing undesired content such as advertisements from a program, such as a television or radio broadcast.

Many proposals have been put forward for removing undesired content, such as advertisements, from broadcasts, such as television broadcasts. Typically these rely upon analysis of visual or audial parameters of the program to determine the type of content and edit out the undesired content. For example, a television picture often has different attributes when a desired program is displayed to those exhibited by undesired material, such as advertisements. Utilising complex image processing undesired advertising content can often be detected and eliminated. This requires sophisticated processing and does not produce totally reliable results. Further, should such a system become wide spread broadcasters could change program content parameters so as to fool such a system.

The present invention aims to provide a reliable, convenient and practical system to enable undesired content to be removed or to at least provide the public with a useful choice.

According to a first aspect of the invention there is provided an apparatus comprising:

recording means for recording a program containing content of a first type and content of a second type;

means for recording index data associated with a recorded program;

and

playback means for selectively playing the content of the first or second type in dependence upon the index data and timing data.

The timing data contains information as to the location of the content of the first and second types within a program and is preferably supplied from a remote location via a communications link. The recording means and playback means may be incorporated within a single unit or may be separate units enabling a program to be played whilst another program is simultaneously recorded or for multiple programs to be simultaneously played or recorded. The recording media may be magnetic recording media such as disc drive, or a writable or re-writable DVD, CD ROM, RAM or other suitable storage media.

The first content is preferably desired program content and the second content is preferably undesired content such as advertisements. Further categories of content, such as restricted adult viewing, may also be defined. For restricted adult content the apparatus may require a security code to be entered for a program to be viewed.

The index data is preferably information as to the time of recordal of the content which is periodically recorded on the media as a program is recorded but could simply be counter information if the counter information is synchronised with the timing data. The index data may simply consist of a start time and the counter may be relied upon thereafter or timing information may be recorded with program data at regular intervals.

Timing data is preferably generated at a remote location and transmitted to each apparatus. The timing data indicates the portions of the program comprising the first and second data.

According to a further aspect of the invention there is provided an apparatus comprising:

- recording means for recording a program;

communication means for receiving timing data from a remote location which indicates whether the content of a program is of a first or second type; and

control means for controlling the recording means to record the program only when the timing data indicates that the program content is of a first type.

The invention will now be described by way of example with reference to the accompanying drawing showing a possible embodiment of the invention.

Referring to figure 1 the apparatus is seen to include a playback means 1, in this case a DVD player, a recording means 2, in this case a DVD recorder and a controller 3. Controller 3 reads and writes data to memory 4 and communicates via modem 5 through telecommunications network 6 with a server 7. Tuner 8 receives RF signals from antenna 9 or signals from cable 10 and supplies audio visual information to recording means 2. Playback means 1 outputs audio visual data to video display 11 for display.

In use a DVD cassette is placed within recording means 2 and the desired input to tuner 8 (i.e. television broadcast or cable) is selected. When recording of the selected program is initiated, controller 3 supplies timing information from its internal clock to recording means 2 which records the information in combination with the selected program information. This timing information may be incorporated within headers recorded at intervals before blocks of program information. These headers may contain information such as the country, region, channel, date, time, screen controls, user identification and scrambler code. The form of the header will of course depend upon the particular application. This index information may be stored periodically or simply at the commencement of recording, in which case standard counter information is also utilised.

When a user wishes to view a recorded program a DVD cassette containing such a recording is inserted within playback means 1 and a user gives a playback instruction. When controller 3 detects that a program is being played it obtains index information from playback means 1. Controller 3 then checks its internal memory to see whether timing information is stored in its memory for the program being viewed. Timing information will be periodically downloaded via modem 5 and network 6 from server 7. Timing information may be downloaded daily or at some other suitable period. If timing information has been stored by controller 3 for this program then this is utilised during playback. If no timing information has already been stored for the program then controller 3 for this program then sends, via modem 5 and network 6, a request to server 7 for timing information relating to that program. Server 7 downloads the appropriate timing information via network 6 and modem 5 to controller 3, which stores the timing information in memory 4.

During periodic regular downloading of timing information from server 7 controller 3 will request timing information only for those recently recorded programs for which timing information has not been stored. Controller 3 maintains a register of programs for which timing information has and has not been stored so that during downloads it obtains only the information required for the recorded programs for which timing information has not yet been stored. During downloading of timing information from server 7 to controller 3, clock information may be downloaded so that any time errors of the internal clock within controller 3 are corrected, the clock time may be corrected by other means also. The connection between controller 3 and server 7 may be via a telephone network or other suitable radio, cable or other link.

Playback means 1 plays the recorded program under the control of controller 3. Controller 3 constantly compares the timing information stored in memory 4 with index information periodically supplied from

playback means 1. When the timing and index information indicates that a first program is being played, playback means 1 outputs this program content to display 11. When the index data and timing data indicate that a second type of program is present playback means 1 is controlled by controller 3 to move forward until the index data and timing data indicate that the first type of program content is again present. Playback then continues and output to display 11 is resumed. Using a DVD player or a hard disk as the player this can be achieved without any perceptible pause in the program.

During playback the index information stored on the played media may be replaced with tags indicating whether the associated program contents are of a desired or undesired type. In this way the next time the media is played controller 3 can identify the portions containing desired program material without need to refer to timing information stored in memory 4. The timing information stored in memory 4 may be erased at this time to allow new timing information to be stored.

An archiving function may also be utilised to play media in player 1 and record only desired program content upon media in recording means 2.

As the media in player 1 is being played controller 3 edits out the undesired program content and supplies only the desired program content to recording means 2 to be recorded on the media.

It will also be appreciated that playback means 1 and recording means 2 can utilise any suitable recording medium. Where a program is recorded on re-writable DVD CD ROM, a hard disc drive or RAM it will be appreciated that playback may quickly skip from one section of data of the first type to the next section. It will also be appreciated that the system allows the simultaneous playback of a prerecorded program via playback means 1 whilst another program is being recorded by recording means 2.

It will be appreciated that a single or multiple hard disk drives could perform the functions of player 1 and recorder 2.

It will be appreciated that where high capacity short access time media is employed that multiple programs may be recorded or played concurrently. This enables programs that are broadcast simultaneously on different channels to be simultaneously recorded (providing tuner 8 can provide multiple channels simultaneously). Likewise, multiple programs can be played back simultaneously and a user can view a number of programs simultaneously or "surf " between programs as desired.

According to a second mode of operation, when recording a program, controller 3 may send index information regarding the type of program being recorded to server 7 at the start of recording. Server 7 may continuously supply timing data to controller 3 indicating the type of content at particular times. Controller 3 may control recording means 2 to record only when the timing data received from server 7 indicates that content of a first type is being transmitted. This enables recording means 2 to record more content on the storage media and avoids the need to obtain timing data during playback.

This system enables personal user preferences to be profiled so that they can select to view only certain types of content. A user may activate a set-up mode via a remote control sending commands to controller 3 or by a control panel connected directly to controller 3. Controller 3 may then display a menu on display 11. Using the remote control buttons, or a control panel, the user can scroll up and down through options and select the desired entry when displayed on display unit 11. Different types of content may be selected for viewing, such as sport (in general or a particular sport), news, (in general or a particular aspect) etc. General content types may be selected. A user can then define their level of interest in the particular content type. For example, under the general



content type "news", the user may define the extent of political coverage they wish to view according to a ranking system as follows:

RANKING	SOURCE	TYPE
1	NEWS	Reports on general political events
2	NEWS	Reports on specific political events
3	NEWS	Reports on political figures
4	NEWS	Interviews with political figures
5	CURRENT AFFAIRS	Interviews with political figures
6	CURRENT AFFAIRS	Round table discussions – various parties.
7		Party political broadcast

By selecting a ranking from 1 to 7 a user can select the depth of coverage they desire. Once a user has selected the program sources and associated rankings they desire controller 3 connects to server 7 via modem 5 and network 6. Server 7 compares the user profile with all programs in a period selected by a user. Information regarding the programs and their start/stop times is transmitted to controller 3 which displays these on display unit 11. These programs represent those in the selected time period meeting the user profile.

A user can then select the programs that he/she wishes to record using the remote control. Controller 3 may also display the amount of storage media required to store a program and the amount available so that a user can prioritise their selection of programs taking into account the available media space. With high capacity media a very large number of programs may be stored. Further, compression technologies may be utilised to further extend the amount of content that can be recorded.

The programs selected by a user are then stored in memory 4 so that controller 3 will automatically record the selected programs. The controller will start recording the programs slightly before the program start time and end recording slightly after the program stop time to account for any variations in actual program broadcast time. These "buffer" periods can be removed during playback along with any undesired program content.

The system also enables certain program content to be restricted by restricting the playing of certain programs. During set-up a profile is entered for each user. The profile sets the content each viewer is allowed to view. Categories of content may include violence, sex, nudity, controversial issues etc. Different users may have different access rights. For example, parents may exclude violence, sex, nudity and controversial issues from children's profiles so that such content will not be played for them.

When playing a program a user may be required to enter their ID and password. If they are not permitted to play the type of content contained in the type of program they wish to play controller 3 prevents the playing of that content. Where the objectionable content makes up only a part of a program they may be allowed to view the other parts of the program. Rather than setting up an individual profile for every child, a user may simply enter the age of the child and a general profile considered appropriate for that age may be applied.

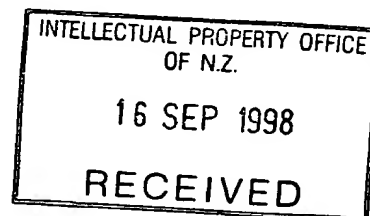
Other types of material may also be edited from a program. For example, political material may be considered nondesired content for an adult viewer. Such content could be edited out of any program a viewer is watching if such content is defined in a user profile as undesirable content (see previous discussion on user profiles).

Timing information for programs may be manually coded and stored in server 7. Alternatively, content could be edited utilising advanced computer text recognition programs which identify such content and generate timing information automatically. As discussed above the user may select a level of content they wish to view according to a ranking system.

Where in the foregoing description reference has been made to integers and elements having known equivalents, then such equivalents are incorporated as if individually set forth.

Although this invention has been described by way of example and with reference to possible embodiments thereof, it is to be understood that modifications and improvements may be made without departing from the spirit or scope of the invention.

DSTD CONSULTANTS LTD  
By their Attorneys  
BALDWIN SHELTON WATERS



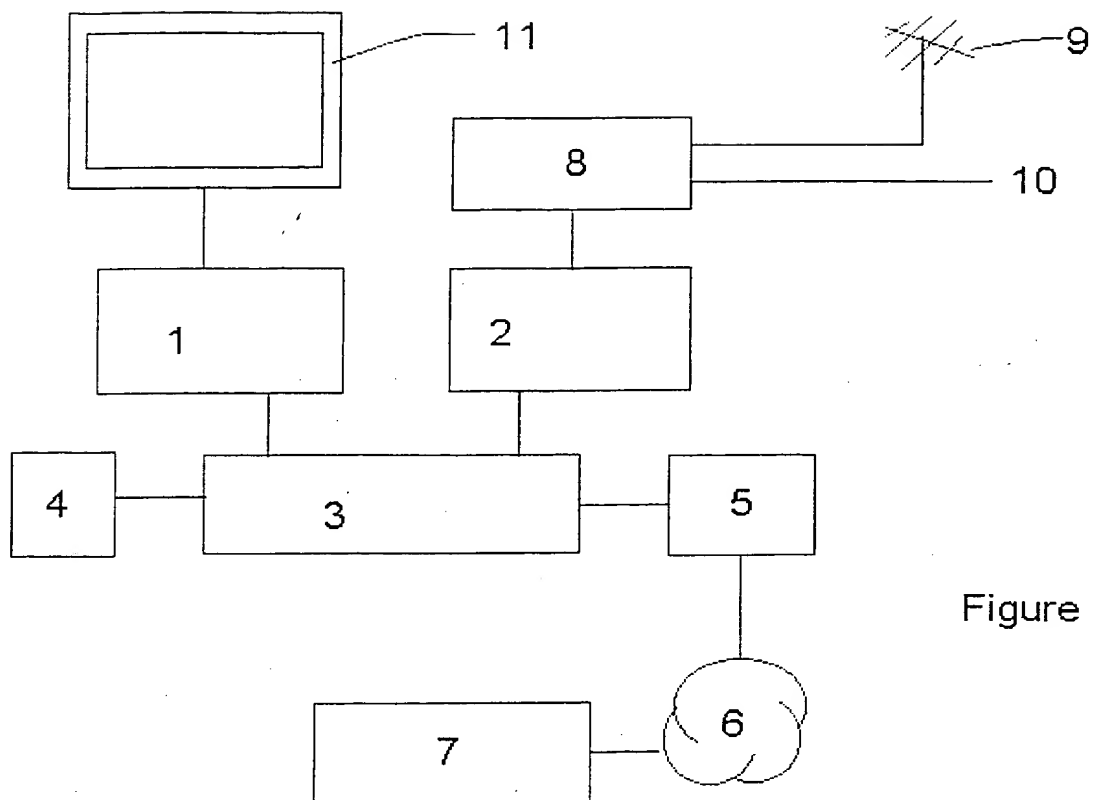


Figure 1